DOCUMENT RESUME

ED 077 724 SE 016 281

TITLE	Strand IV Environmental and Community Health, Ecology and Health, Grades 7, 8, and 9.
INSTITUTION	New York State Education Dept., Albany. Bureau of Secondary Curriculum Development.
PUB DATE	70
NOTE	46p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Community Health; Comprehensive Programs; *Curriculum Guides; *Ecology; *Environmental Education; Instructional Materials; Learning Activities; Models; *Secondary Grades; Teaching Guides

ABSTRACT

Man, with his ability to develop and control his environment, and, conversely, the controlling or limiting factors of the environment that affect man's health and activities are dealt with in this prototype curriculum for grades 7-9. The basic principles related to ecology affecting man's health are given primary consideration. Specific curriculum content studies: (1) the development of ecology, (2) man's health and the physical, biological, and sociocultural environments, and (3) an individual's health as affected by reacting with his environment. Appended material includes bibliographies of multimedia resources for teachers and students. This publication is one in a series of health curriculum materials devoted to environmental and community health (Strand IV). Four other strands deal with physical and mental health, sociological health problems, and education for survival. The format consists of four columns intended to provide teachers with: (1) a basic content outline, (2) major understandings and fundamental concepts, (3) teaching aids and learning activities, and (4) information about resource materials, sources, and personnel. Because of the comprehensive nature of the total curriculum, teachers are advised to become familiar with all strands presently in print. Related documents in Strand IV are ED 03. 738-9, ED 049 477-8, and SE 016 280-6. (BL)

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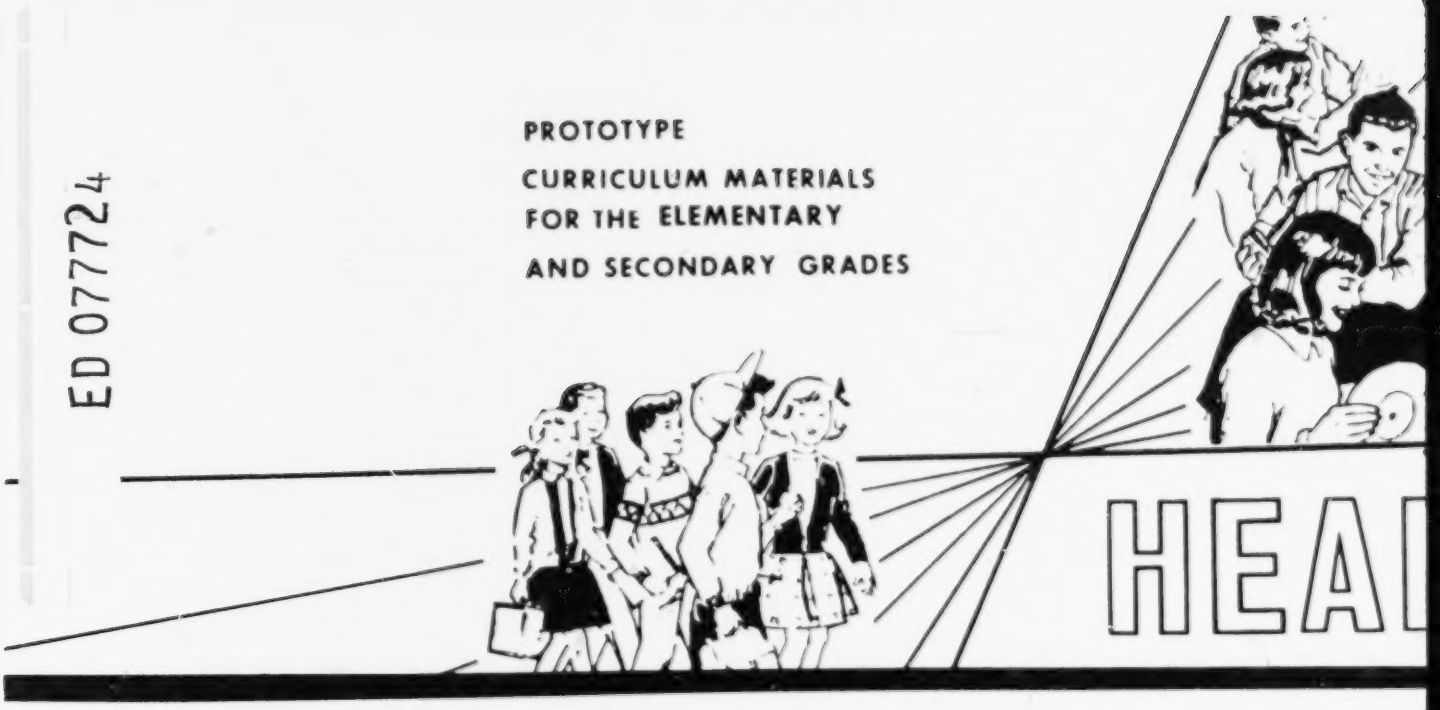
PROTOTYPE
CURRICULUM MATERIALS
FOR THE ELEMENTARY
AND SECONDARY GRADES



STRAND IV ENVIRONMEN
AND COMMUNITY HEALTH

Ecology and Health
Grades 7, 8, and 9

Special edition for
evaluation and discussio

THE UNIVERSITY OF THE STATE OF NEW YORK / THE STATE EDUCATION DEPARTM
BUREAU OF SECONDARY CURRICULUM DEVELOPMENT / ALBANY, NEW YORK 1222

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HEALTH

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HEALTH CURRICULUM MATERIALS
Grades 7, 8, 9

STRAND IV — ENVIRONMENTAL AND COMMUNITY HEALTH
ECOLOGY AND HEALTH

Reprint 1971

The University of the State of New York/The State Education Department
Bureau of Secondary Curriculum Development/Albany 12224
1970

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FOREWORD

This publication contains curriculum suggestions for teaching Strand IV - Environmental and Community Health, Ecology and Health, for Grades 7, 8, and 9.

The publication format of four columns is intended to provide teachers with a basic content outline in the first column; a listing of the major understandings and fundamental concepts which children may achieve, in the second column; and information specifically designed for classroom teaching which should provide them with resource materials, teaching aids, and supplementary information, in the third and fourth columns. The comprehensive nature of the health program makes it imperative that teachers gain familiarity with all of the strands presently in print. In this way, important teaching-learning experiences may be developed by cross referring from one strand to another.

It is recommended that the health coordinator in each school system review these materials carefully and consult with teachers, administrators, and leaders of interested parent groups in order to determine the most appropriate manner in which to utilize this strand as an integral part of a locally adapted, broad and comprehensive program in health education.

The curriculum materials presented here are in tentative form and are subject to modification in content and sequence. Critiques of the format, content, and sequence are welcomed.

Gordon E. Van Hooft
Chief, Bureau of Secondary Curriculum Development

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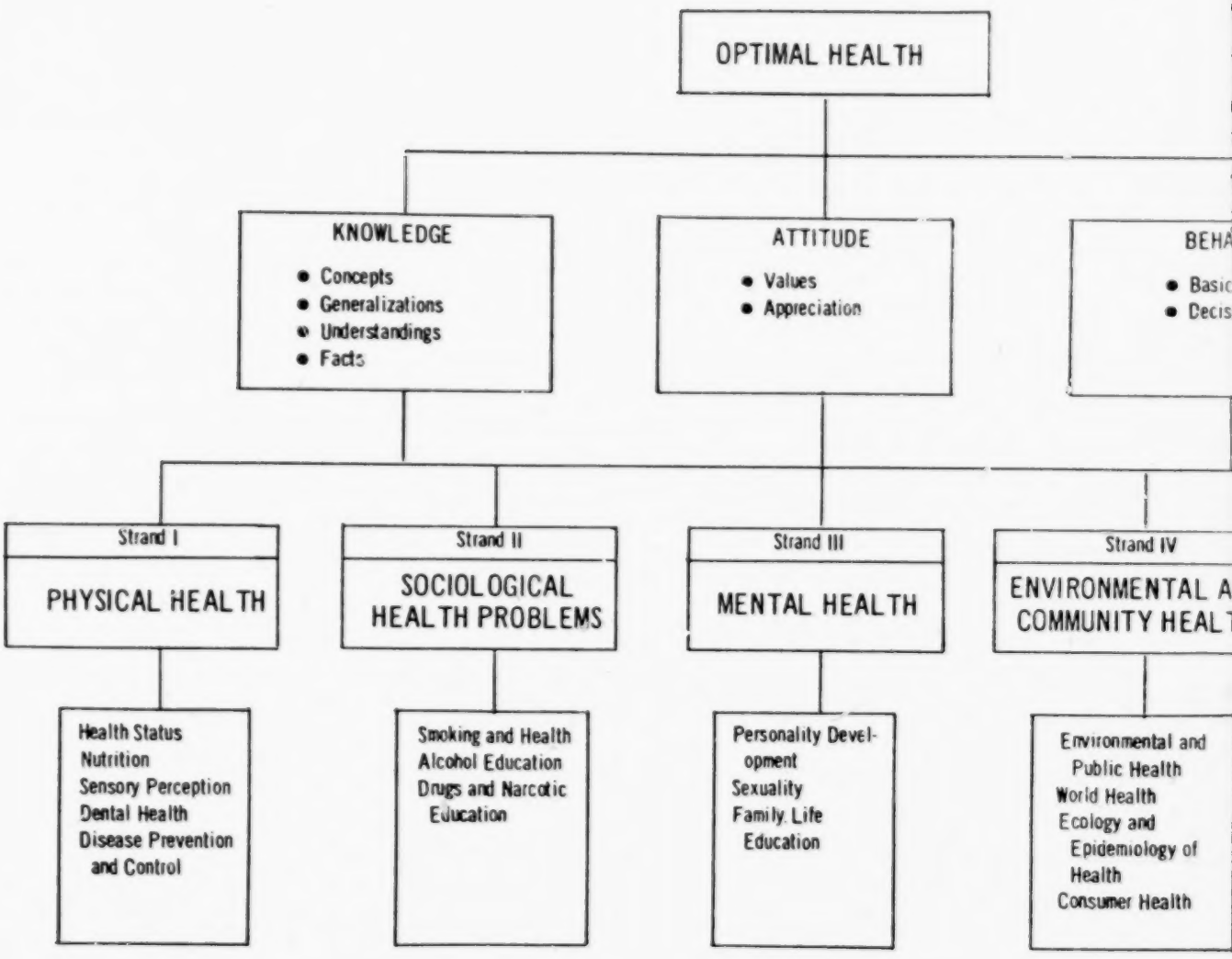
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Nutrition
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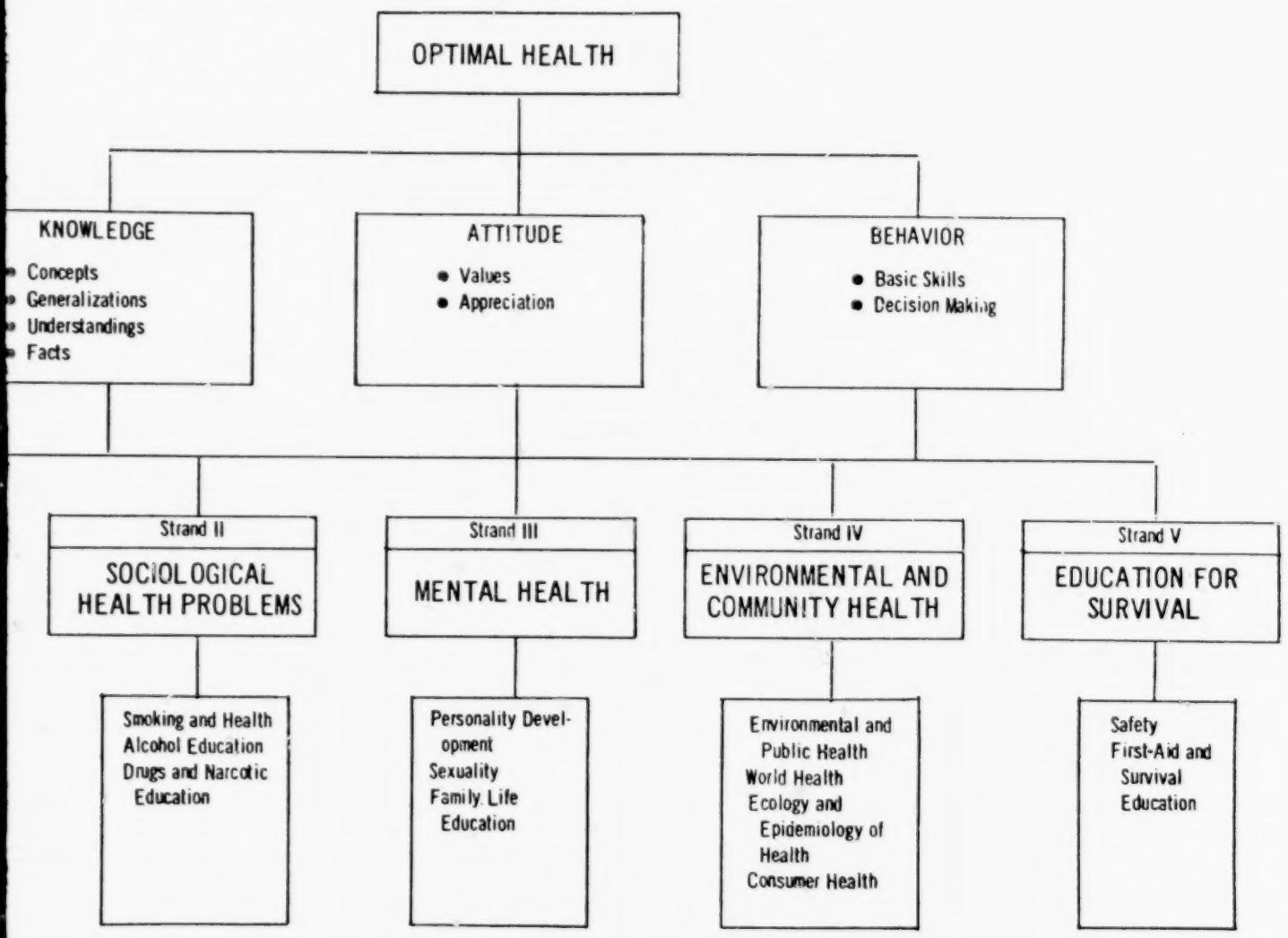
Smoking and Health
Alcohol Education
Drugs and Narcotic Education
Personality Development
Sexuality
Family Life Education
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health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Strand IV
ENVIRONMENTAL AND COMMUNITY HEALTH
Environmental and Public Health
World Health
Ecology and Epidemiology of Health
Consumer Health
Strand V
EDUCATION FOR SURVIVAL
Safety
First-Aid and Survival Education

ECOLOGY AND HEALTH

Grades 7, 8, 9

Overview

This strand deals with man and his ability to develop and control his environment, and, conversely, the controlling or limiting factors of the environment that affect man's health and activities. The basic principles related to ecology affecting man's health are given primary consideration.

Changes in population, societal structure, purposes and activity, along with scientific development, and natural environmental phenomena, present us with challenging health implications. It has, therefore, become increasingly important for students not only to understand their environment (what it is and what it does), but also to become committed to involving themselves in bringing about its improvement. It is essential that teachers select, or create, learning experiences which will reach these ends.

Some of the concepts which students should develop through their learning experiences include:

- How to cope with health problems related to the ecological factors
- The ecological factors which affect one's behavior
- The nature of environmental variables

Pupil Objectives

Students in grades 7, 8, and 9 should:

- Develop an understanding of the nature of the ecological process.
- Understand how the ecological factors affect man and his health.
- Appreciate man's effort to improve his environment and consequently his health.
- Learn about the increased complexities dealing with disease, man, and his environment.
- Understand how geography, culture, and artificial and natural environmental factors affect man through their interactions.

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OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
I. Ecology: Its Development	Numerous scientific disciplines have contributed to the science of ecology in an effort to understand, cope with, and prevent disease, defect, disability, and death. It is through the combination and application of these sciences that we can best understand health problems and, consequently, the means of attaining optimal health.	This is an appropriate time to discuss in general terms the meaning of ecology. - What is ecology? (See concept A) - Make a list of sciences which contribute to ecology. - Explain how each contributes. - How does each help us to understand the nature of disease and disability? - With what we know now about man and his environment, discuss the factors which may contribute to our further understanding, in the future, of ecology.	Ecol to a compl betwe envir The s he re probl be ac scien It is terre appli biolo scien ligen scien matel of ma The p is no matte habit custo group popul It is effor contr led t statu cienc creat tinue hazar

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Numerous scientific disciplines have contributed to the science of ecology in an effort to understand, cope with, and prevent disease, defect, disability, and death. It is through the combination and application of these sciences that we can best understand health problems and, consequently, the means of attaining optimal health.	This is an appropriate time to discuss in general terms the meaning of ecology. - What is ecology? (See concept A) - Make a list of sciences which contribute to ecology. - Explain how each contributes. - How does each help us to understand the nature of disease and disability? - With what we know now about man and his environment, discuss the factors which may contribute to our further understanding, in the future, of ecology.	Ecology provides an approach to an understanding of the complex interrelationship between organisms and their environment. The study of modern man as he relates to current health problems and issues cannot be accomplished through the science of biology alone. It is only through the interrelationships and the application of the physical, biological, and behavioral sciences that we can intelligently utilize and apply scientific findings ultimately to improve the health of man in the 20th century. The prevention of disease is now becoming more of a matter of changing the habits, lifestyle, and customs of individuals and groups than of immunizing populations. It is significant that man's efforts to understand and control his environment have led to his increased health status, longevity, and efficiency. However, man's created environment continues to present serious hazard conditions to his

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES
A. Ecological components	Human ecology is the science which studies the relationships of man interacting with his total environment (physical, biological, and socio-cultural). Man's environment is a composite of the (1) natural components, (2) man's creations, and (3) numerous combinations of the two.	Have the class give examples of how man interacts with the various parts of his environment. 1. How does each affect his behavior? Efficiency? 2. Which factor - physical, biological, or cultural - seems to have the greatest effect? Urgency? 3. What can we conclude about this from a health standpoint?
1. Physical environment	Man's physical environment may favorably or unfavorably influence his health status.	Have the students list and describe ways in which the physical environment affects their health status. Include both favorable and unfavorable effects.

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		health; air, water, and land pollution, for example. We need to reverse these artificial environmental trends and redefine our concept of progress.
Human ecology is the science which studies the relationships of man interacting with his total environment (physical, biological, and socio-cultural). Man's environment is a composite of the (1) natural components, (2) man's creations, and (3) numerous combinations of the two.	Have the class give examples of how man interacts with the various parts of his environment. 1. How does each affect his behavior? Efficiency? 2. Which factor - physical, biological, or cultural - seems to have the greatest effect? Urgency? 3. What can we conclude about this from a health standpoint?	Ecology is the science that deals with the interrelationships of organisms and their environments. In human ecology, the primary consideration is the interrelationship of man and his physical, emotional, and social environments. However, it should be noted that human ecology, at times, necessarily becomes involved with ecological relationships of other organisms. For example, intermediary hosts and vectors experience an ecological relationship in their own life cycle, and may also be implicated in the transmission of disease to humans.
Man's physical environment may favorably or unfavorably influence his health status.	Have the students list and describe ways in which the physical environment affects their health status. Include both favorable and unfavorable effects.	Various factors related to air, water, and soil are examples of the effects of the physical environment on health. . We are dependent on air to support life.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
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			We al the a contr able al) s life,
2. Biological environment	Man also lives in a biological environment surrounded by numerous plants and animals which may be either beneficial or harmful to his health.	Have students relate and describe how the biological environment influences their health status: 1. Physically 2. Psychologically	We ar and a Microb eithe ful t
3. Sociocultural environment	The sociocultural environment contains both favorable and unfavorable ecological factors and conditions which affect man's level of health.	Have students describe how the sociocultural environment impinges upon man's health status. Give examples of how man's advances have created new kinds of ecological problems.	Variou ronmen health scient advanc health while are a and s
II. Man's Health and the Physical Environment	The process of living involves a continual interplay between the individual and his physical environment.		

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		. We are dependent on soil for plant food. . Water is necessary for survival. We also need to consider the aesthetic factors which contribute to the pleasurable (cultural and emotional) sensations which enrich life, beauty, for example.
Man also lives in a biological environment surrounded by numerous plants and animals which may be either beneficial or harmful to his health.	Have students relate and describe how the biological environment influences their health status: 1. Physically 2. Psychologically	We are dependent upon plants and animals for food. Microbes exist which may be either beneficial or harmful to man's health.
The sociocultural environment contains both favorable and unfavorable ecological factors and conditions which affect man's level of health.	Have students describe how the sociocultural environment impinges upon man's health status. Give examples of how man's advances have created new kinds of ecological problems.	Various sociocultural environmental factors affect health status. For example, scientific and technological advances have led to better health and greater longevity, while population increases are accompanied by hunger and starvation.
The process of living involves a continual interplay between the individual and his physical environment.		

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES
A. Air	From birth to death, man is completely surrounded by air. It is one factor in man's environment to which he is continuously exposed. Oxygen, necessary for the maintenance of life, is extracted from air along with other gases and substances by the human respiratory system.	Show and discuss film *Air Pollution - Everyone's Problem* or *The First Mile Up* Refer to Strand IV - Environmental Health. Have students relate the way they feel and react when it is hot and humid.

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From birth to death, man is completely surrounded by air. It is one factor in man's environment to which he is continuously exposed. Oxygen, necessary for the maintenance of life, is extracted from air along with other gases and substances by the human respiratory system.	Show and discuss film *Air Pollution - Everyone's Problem* or *The First Mile Up* Refer to Strand IV - Environmental Health. Have students relate the way they feel and react when it is hot and humid.	Selected examples of effects of the physical environment upon health: . We are dependent on air to support life itself. Generally, man can live without food for 5 weeks, without water for 5 days, and without air for 5 minutes. . Air may also serve as a vehicle for transmitting infectious diseases in man. . Air also carries the pollutants of our environment that contaminate our atmosphere and produce air pollution. Our improved technology and expanding population combine to produce numerous modern day public health problems, (i. e., air and water pollution, sewage disposal, pesticides, radiation, etc.). . Man and his efficiency may be influenced by the physiological and psychological effects of the hot, humid, stagnant air that surrounds him.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
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	A thermal inversion occurs when cool sea air moves in near the surface beneath warmer air. The cool air becomes sealed in near the surface and the pollutants accumulate in this layer and cannot escape. (A change in the weather permits the escape of the cooler air.)	Have students do research on air pollution problems in New York City, Elmira, Buffalo, etc. How do the climate and terrain affect the air pollution problem in these areas? Refer to Strand IV, Public and Environmental Health. What are these cities doing to revise the pollution trends? What political forces are at work regarding health problems?	Los A probl becau situa coast rimme venti weak the p numbe the c condi inver appro year.
B. Water	Pure water, as well as clean air, is an essential element of a healtful environment. Water is one of man's most pressing problems. The quality of water is of primary concern.	Question for research and discussion: What is being done in New York State to assure us of a safe water supply? The sanitary engineer or sanitarian from the county health department is a good resource. Refer to Strand IV, Environmental Health. How does water pollution affect us from a psychological viewpoint?	. Wat man . Wat veh for dis dys . One hos wit fro . Sta wit tem and for dis

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		. There is higher incidence of respiratory diseases during the winter months than in the summer.
A thermal inversion occurs when cool sea air moves in near the surface beneath warmer air. The cool air becomes sealed in near the surface and the pollutants accumulate in this layer and cannot escape. (A change in the weather permits the escape of the cooler air.)	Have students do research on air pollution problems in New York City, Elmira, Buffalo, etc. How do the climate and terrain affect the air pollution problem in these areas? Refer to Strand IV, Public and Environmental Health. What are these cities doing to revise the pollution trends? What political forces are at work regarding health problems?	Los Angeles has a serious problem with air pollution because of its geographical situation on a narrow coastal strip which is rimmed by mountains and ventilated by relatively weak winds. Aggravating the problem is the large number of automobiles in the city and the weather condition called a thermal inversion which occurs approximately 100 days a year.
Pure water, as well as clean air, is an essential element of a healtful environment. Water is one of man's most pressing problems. The quality of water is of primary concern.	Question for research and discussion: What is being done in New York State to assure us of a safe water supply? The sanitary engineer or sanitarian from the county health department is a good resource. Refer to Strand IV, Environmental Health. How does water pollution affect us from a psychological viewpoint?	. Water is necessary for man's survival. . Water may serve as a vehicle of transmission for certain infectious diseases, (i.e., typhoid, dysentery, cholera, etc.) . One-fourth of the world's hospital beds are filled with people suffering from waterborne diseases. . Stagnant water combined with the proper climate, temperature, rainfall, and terrain are necessary for the perpetuation of diseases such as malaria,

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C. Soil	Uncontaminated soil is necessary for growth of food.	Assign a small group of students to find out about contamination of soil by insecticides. The Farm Bureau, 4H, or other such agencies should be approached for information. You may wish to show the film: *Perspectives on Pesticides* available from the N.Y.S. Dept. of Health.	. W s o . S f d l d . M s g l s o v c
	Soil can harbor infectious bacteria.	Discuss the "who, how, where, when, and why" about contracting tetanus. What preventive measures can be taken?	. T r e f p

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		yellow fever, and encephalitis. These climatic factors create the necessary breeding environment for the survival of the mosquito.
Uncontaminated soil is necessary for growth of food.	Assign a small group of students to find out about contamination of soil by insecticides. The Farm Bureau, 4H, or other such agencies should be approached for information. You may wish to show the film: *Perspectives on Pesticides* available from the N.Y.S. Dept. of Health.	. We are dependent on the soil for plant food for our existence. . Soil erosion may lead to food shortages which produces starvation and lowered resistance to disease. . Mineral depletion in the soil may cause endemic goiter in man due to the lack of iodine in the soil. However, the use of iodized salt has alleviated the problem to a considerable extent.
Soil can harbor infectious bacteria.	Discuss the "who, how, where, when, and why" about contracting tetanus. What preventive measures can be taken?	. The soil serves as a reservoir (to a limited extent) for the spore-forming bacillus that produces tetanus. When environmental conditions become unfavorable, the tetanus bacillus assumes the spore stage. The protoplast shrivels, and changes in the cell wall occur. Spore forms of bacteria are generally re-

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLE
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D. Geography and topography	Certain geographical areas of the world have higher disease rates which are due, in part, to the climatic conditions found in these areas. Geographical differences in death rates are also dependent upon variations in levels of living, composition of the population, and the availability and utilization of health services within that particular area. Characteristics of the physical terrain of a given land area may enhance the possibility that disease will occur. The physical environment appears to help in conditioning the human body to either resist or fall prey to disease.	Refer to Strand IV, World Health. Assign a student to interview a public health physician or general practitioner about the various ways of protecting individuals who plan to travel to foreign countries. Have students identify and describe the epidemiological characteristics of malaria, yaws, hookworm, tetanus, etc. Show and discuss film: *The Mosquito and Its Control*.	Tropic areas ly hav for ma yaws, Infant ity ra southe the ma diseas monia, exert in ter southe The se mosqui of the temper ence o breedi averag of 22 provid tions spread

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		sistant to heat, cold, chemicals, and other unfavorable environmental conditions. When conditions become favorable, such as when introduced into a puncture wound, the spore form may return to its original state and produce disease.
Certain geographical areas of the world have higher disease rates which are due, in part, to the climatic conditions found in these areas.	Refer to Strand IV, World Health.	Tropical and subtropical areas of the world generally have higher disease rates for malaria, yellow fever, yaws, etc.
Geographical differences in death rates are also dependent upon variations in levels of living, composition of the population, and the availability and utilization of health services within that particular area.	Assign a student to interview a public health physician or general practitioner about the various ways of protecting individuals who plan to travel to foreign countries.	Infant and maternal mortality rates are higher in the southeastern states. Also, the major communicable diseases, influenza, pneumonia, and tuberculosis exert their largest toll in terms of death in the southern states.
Characteristics of the physical terrain of a given land area may enhance the possibility that disease will occur.	Have students identify and describe the epidemiological characteristics of malaria, yaws, hookworm, tetanus, etc.	The seasonal incidence of mosquitoes in many regions of the world is governed by temperature and the presence of stagnant waters of breeding. Areas that have average monthly temperatures of 22 to 25 degrees celsius provide the optimal conditions for breeding malaria-spreading anopheles
The physical environment appears to help in conditioning the human body to either resist or fall prey to disease.	Show and discuss film: *The Mosquito and Its Control*.	

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITES	SUPP
	The atmospheric environment may be favorable or unfavorable to the survival of microorganisms.	Have some students interview a public health officer in their area as to how climate influences disease. Are there some diseases that are more prevalent during certain times of the year? Are there some diseases that show a higher mortality	

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		mosquitoes. Adequate rainfall in the area is also essential to fill the land areas and produce the stagnant pools. Temperature and moisture conditions also play a major role in yaws. Yaws is transmitted to man by a spirochete that tends to survive best in moist, warm soils and causes infection through insect bites and scratches on the skin. Yaws is particularly common in Africa, the Philippines, Indonesia, Southeast Asia, and the South Pacific Islands. Hookworm disease is more prevalent in areas characterized by heavy rainfall, periodic flooding, sandy soil, and where disposal of human feces is inadequate.
The atmospheric environment may be favorable or unfavorable to the survival of microorganisms.	Have some students interview a public health officer in their area as to how climate influences disease. Are there some diseases that are more prevalent during certain times of the year? Are there some diseases that show a higher mortality	Geographical areas of high ultraviolet radiation, combined with low humidity and extreme cold weather, tend to be unfavorable for microorganisms. Many pathogens tend to be absent from the air in higher elevations, desert, and polar regions. (Some of the

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUP
		rate during a particular time period?	res to und con
E. Climate	Climate can affect man and his health in many different ways. The human body has a limited ability to adjust to environmental conditions.	Discuss the various ways in which climate affects man's health. Refer to the effects of temperature and humidity. Read about health precautions taken by arctic explorers and American astronauts to prepare for their trips. Why do arthritic joints sometimes become painful in changing weather?	Hig wit of ove bod 41 str mor Low nat ity bit con was of Kor ron a r atu unc dea ous war cha rat reg int int tic cel was

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	rate during a particular time period?	respiratory viruses appear to be unable to survive under these environmental conditions.)
Climate can affect man and his health in many different ways. The human body has a limited ability to adjust to environmental conditions.	Discuss the various ways in which climate affects man's health. Refer to the effects of temperature and humidity. Read about health precautions taken by arctic explorers and American astronauts to prepare for their trips. Why do arthritic joints sometimes become painful in changing weather?	High temperatures, combined with high humidity and lack of ventilation, produce overheating. If a man's body temperature rises to 41 degrees celsius, heat stroke occurs and a high mortality rate ensues. Low temperatures in combination with high wind velocity cause cooling. Frostbite may be one of the first consequences. (Frostbite was one of the major causes of casualtities during the Korean conflict.) If environmental conditions cause a reduction of body temperature to 33 degrees celsius, unconsciousness occurs and death may result. Continuous exposure to cool or warm climates produces changes in man's metabolic rate. Heat production is regulated through caloric intake. The average caloric intake of servicemen stationed in a 32-degree celsius, desert environment was 2900 calories as

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	Ultraviolet radiation from the sun can have both positive and negative effects on health.	Research and discuss: Can too much sun be harmful? How and why? Are some people more susceptible to the effects of too much exposure to the sun? How much sun is needed to provide the daily requirement of vitamin D? How is vitamin D made by the body? (See Strand I, Nutrition.)	comp in a arct Over radi or a devi of t Ultr duce vita is e tion The ultr the canc have peri Ultra also chemi chang tion the irrit the Low u high tempe condu of mi

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		compared to 4900 calories in a –29-degree celsius, arctic area.
Ultraviolet radiation from the sun can have both positive and negative effects on health.	Research and discuss: Can too much sun be harmful? How and why? Are some people more susceptible to the effects of too much exposure to the sun? How much sun is needed to provide the daily requirement of vitamin D? How is vitamin D made by the body? (See Strand I, Nutrition.)	Overexposure to ultraviolet radiation produces sunburn, or acts as a protecting device and produces tanning of the skin. Ultraviolet radiation produces the protective provitamin D in the skin which is essential in the prevention of rickets. The most damaging effect of ultraviolet radiation is in the production of skin cancer in individuals who have been exposed for long periods of time. Ultraviolet radiation is also responsible for photochemically altering and changing man-made combustion products which cause the formation of highly irritating substances in the atmosphere. Low ultraviolet radiation, high humidity, and warm temperature appear to be conducive to the survival of microorganisms.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	Climate therapy has been used in the past by the medical profession for numerous health problems.	Question for discussion: For what conditions do physicians recommend that people relocate, and to where? Most physicians could respond to this question from a student.	Many chit bene sunn Howe has duri deca sinc be p with resu
F. Communities and housing			
a. Effects of housing on health	Substandard housing, especially slums, is characterized by high morbidity and mortality rates.	Questions for research and discussion: What is being done in our community to eliminate substandard housing? To provide adequate housing? Who is responsible for maintaining adequate housing? (You may wish to consider the role of: lessor, lessee, homeowner, health department, and housing code enforcement agent.) What diseases and health problems exist in substandard housing areas at higher rates than in areas of adequate housing? (Health department	Altho corr stan ease rate slum Subs fine peop live is a dwel let, hot adeq clea the Bligh of n ings dete

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Climate therapy has been used in the past by the medical profession for numerous health problems.	Question for discussion: For what conditions do physicians recommend that people relocate, and to where? Most physicians could respond to this question from a student.	Many patients with bronchitis and sinusitis have benefited by moving to sunny and dry climates. However, climate therapy has been largely replaced during the past several decades by chemotherapy, since chemical agents can be prescribed precisely and with reasonably foreseeable results.
Substandard housing, especially slums, is characterized by high morbidity and mortality rates.	Questions for research and discussion: What is being done in our community to eliminate substandard housing? To provide adequate housing? Who is responsible for maintaining adequate housing? (You may wish to consider the role of: lessor, lessee, homeowner, health department, and housing code enforcement agent.) What diseases and health problems exist in substandard housing areas at higher rates than in areas of adequate housing? (Health department	Although there is no proven correlation between substandard housing and disease, increased disease rates are associated with slums and blighted housing. Substandard housing is defined as crowding when 1.5 people or more per room live in a dwelling. A slum is a neighborhood in which dwellings lack inside toilet, and bath facilities, hot and cold running water, adequate heat, light, quiet, clean air, and space for the number of residents. Blighted housing is an area of no growth in which buildings are permitted to deteriorate.

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		or housing authority officials can provide these data.) You may wish to review part 21 of the State Sanitary Code which lists standards and requirements for adequate housing. If this legislation is enacted at the county level, the county becomes eligible for state aid. The code would then be enforced by the county health department. This activity could be studied by the class, or you might wish to invite the health department sanitary engineer to speak to the class on the topic.	Peop area morb peop hous dise high cabl tina infl para ment mort life Also robb and high
b. Health problems of large urban communities	The trend towards urban living and high population-belts is associated with certain health problems that are less evident in smaller communities.	Have the class or group read and discuss: *Health News*, October 1969. This may be obtained from the county health department, if the school library does not have a copy.	The dise high area and ampl coro deat urba ular 50,0 comm less 1950 dise

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	or housing authority officials can provide these data.) You may wish to review part 21 of the State Sanitary Code which lists standards and requirements for adequate housing. If this legislation is enacted at the county level, the county becomes eligible for state aid. The code would then be enforced by the county health department. This activity could be studied by the class, or you might wish to invite the health department sanitary engineer to speak to the class on the topic.	People living in these areas experience higher morbidity rates than those people who enjoy adequate housing. Examples of some diseases and problems are: higher rates for communicable diseases, v.d., intestinal diseases, pneumonia, influenza, infective and parasitic diseases, t.b., mental illness, infant mortality rates and shorter life expectancy rates. Also, juvenile delinquency, robberies, arrests, murder, and manslaughter rates are higher.
The trend towards urban living and high population-belts is associated with certain health problems that are less evident in smaller communities.	Have the class or group read and discuss: *Health News*, October 1969. This may be obtained from the county health department, if the school library does not have a copy.	The incidence of certain diseases is considerably higher in metropolitan areas than in smaller urban and rural areas. For example, lung cancer and coronary heart disease death rates are higher in urban communities, particularly in communities of 50,000 or more compared to communities of 10,000 or less population. In the 1950's, cardiovascular disease rates in Chicago

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G. Interaction of physical components.	A combination of physical components, when not maintained in a healthful state, can result in high incidence of disease.	Questions for research and discussion: How can the use of insecticides affect the quality of a water source? How does the lay-of-the-land have an effect on air pollution? In what geographical areas would the interaction of certain physical components yield a prevalence of malaria? Hepatitis? Tuberculosis? Skin cancer? What particular physical components are involved? How would you answer these questions in relation to your community?	The p consi soil, topog and h and v a giv a str clean luted away; appli other Many varia ly, c eithe favor The D lutio class pocke large to su

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		vs. smaller Illinois communities were: 25-34 yrs - 25% higher 35-54 yrs - 100% higher 55-64 yrs - 300% higher Air pollution, water pollution, and noise are other problems that are more severe in large cities, as well as congestion and stress.
A combination of physical components, when not maintained in a healthful state, can result in high incidence of disease.	Questions for research and discussion: How can the use of insecticides affect the quality of a water source? How does the lay-of-the-land have an effect on air pollution? In what geographical areas would the interaction of certain physical components yield a prevalence of malaria? Hepatitis? Tuberculosis? Skin cancer? What particular physical components are involved? How would you answer these questions in relation to your community?	The physical environment - consisting of air, water, soil, climate, geography, topography, communities, and housing - is dynamic and variable, - even within a given area. For example, a stream can be relatively clean at one point and polluted a short distance away; the same situation applies to air, soil, and other physical components. Many of these physical variables exist concurrently, creating conditions either favorable or unfavorable to our health. The Donora, Pa., air pollution incident is a classic example. Poverty pockets in many of our large cities are subject to substandard housing, air

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H. Health implications of man's efforts to control the physical environment	Wise use and control of the physical environment are necessary to maintain a healthful environment.	There are many agencies that are concerned with the use and control of the physical environment, such as: the health department, the conservation department, the agricultural administration, housing and urban development corporations, etc. Assign groups or individuals to interview officials of these agencies to learn how they operate to insure the optimum development and use of the various physical environmental components. This should be followed up with a class presentation of each of their findings. Refer to Strand I, Disease Prevention and Control, and Strand IV, Environmental and Public Health.	

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		pollution, noise pollution, poor water supplies, etc. The result is high incidence of numerous diseases.
Wise use and control of the physical environment are necessary to maintain a healthful environment.	There are many agencies that are concerned with the use and control of the physical environment, such as: the health department, the conservation department, the agricultural administration, housing and urban development corporations, etc. Assign groups or individuals to interview officials of these agencies to learn how they operate to insure the optimum development and use of the various physical environmental components. This should be followed up with a class presentation of each of their findings. Refer to Strand I, Disease Prevention and Control, and Strand IV, Environmental and Public Health.	Federal, state, and local efforts are being made to assure quality control of air, land, and water. Many of these efforts are of a legislative nature to provide for regulation of the use of these natural components. Funds are also being made available for the construction of facilities and for the development of techniques to handle these products that result after they have been used. For example, building codes have been devised and regulations made for the proper treatment and disposal of waste products. Laws now exist to prevent the contamination or pollution of air and water. Construction of sanitary landfills has both the effect of eliminating vermin infested "dumps" and of providing land for other purposes such as parks, golf courses, and industrial sites. Conservation measures have assisted in

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		The Third Pollution - a film on disposal of solid wastes (to eliminate "dumps") is available from the N.Y.S. Health Department.	All help inci a le atio more

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		reducing the depletion of other natural resources.
	The Third Pollution - a film on disposal of solid wastes (to eliminate "dumps") is available from the N.Y.S. Health Department.	All of these measures have helped by reducing disease incidence and by providing a legacy for future generations in the form of a more healthful environment.

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III. Man's Health and the Biological Environment	Man also lives in a biological environment surrounded by numerous plants and animals which may be either beneficial or harmful to his health.	Have the students relate and describe how the biological environment influences their health status. Be sure to discuss beneficial as well as harmful effects.	Sele effe envi 1. W plan nece qual deve In a depe man psyc exis 2. M bene man'

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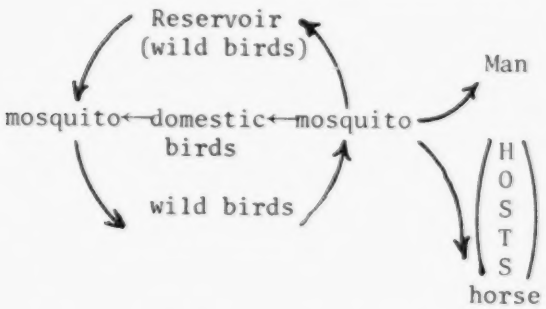
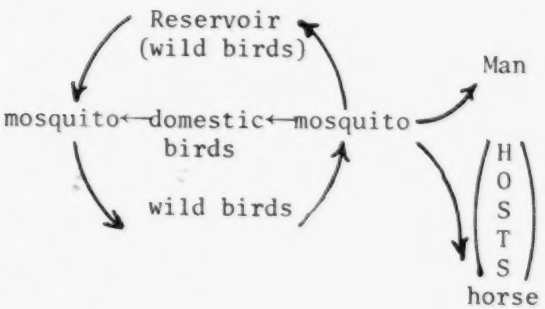
Man also lives in a biological environment surrounded by numerous plants and animals which may be either beneficial or harmful to his health.	Have the students relate and describe how the biological environment influences their health status. Be sure to discuss beneficial as well as harmful effects.	Selected examples of the effects of the biological environment on health are: 1. We are dependent upon plants and animals for the necessary quantity and quality of food growth, development, and health. In addition, man is also dependent upon his fellow man to fulfill his basic and psychosocial needs for existence. 2. Microbes may be either beneficial or harmful to man's health. . Intestinal bacteria play a role in the digestion of food and the manufacture of vitamins. . The intestine in breast-fed infants contains a certain species of bacteria (lactobacillus bifidus). This plays a role in the greater resistance to enteritis(inflammation of the intestine) of the breast-fed infant during the early period of life. . Pathogenic (disease-producing) bacteria may attack man and produce disease.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUP
A. Animal life and man's health	Animal health influences human health directly by causing disease or indirectly by reducing the available food supply. Animals are the natural hosts for most of the zoonotic agents and man is only an incidental host; usually he becomes accidentally involved in the cycle.	Have students review the literature and report on some of the common zoonotic diseases.	Zoo bot Exa not enc tul ant bru A z com an tim a h are by ter beh
1. Encephalitis	Occasionally, as in encephalitis, man becomes implicated when the mosquito transmits the virus to him.		Sel not 1. pod cau

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		. Poisonous plants and animals may produce illness or disease, (i.e., poison ivy, snakes, yellow jackets, poisonous mushrooms, rabies, etc.). . Microorganisms may contribute to soil enrichment by converting plant debris into humus.
Animal health influences human health directly by causing disease or indirectly by reducing the available food supply.	Have students review the literature and report on some of the common zoonotic diseases.	Zoonotic diseases attack both animals and man. Examples of some of the zoonotic diseases are: encephalitis, rabies, tularemia, trichinosis, anthrax, leptospirosis, brucellosis, etc.
Animals are the natural hosts for most of the zoonotic agents and man is only an incidental host; usually he becomes accidentally involved in the cycle.		A zoonotic system usually comprises a disease agent, an animal reservoir, sometimes an insect vector, and a human host. All of these are interconnected with man by climate, temperature, terrain, occupation, health, behavior, etc.
Occasionally, as in encephalitis, man becomes implicated when the mosquito transmits the virus to him.		Selected examples of zoonotic diseases include: 1. Encephalitis is an arthropodborne disease which is caused by a virus carried

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
		The basic transmission cycle of encephalitis is: 	by mo is fo horse There diffe impli diffe quito neuro parti child 2. Le distr which cattl wild of th mates cent fecte anima do no signs
2. Leptospirosis	Humans become infected with leptospirosis by contact with urine from the infected animals. Such contact generally occurs from swimming in farm ponds that have been frequented by cattle.	Invite a veterinarian to speak to the class on animal health and diseases. The discussion should include diseases common to animal and man and their protection. This discussion may be followed by a speaker from the County Health Department discussing the same basic ideas from the department's viewpoint.	Lepto an ac chara chill aches jaund The di more month times swimm public New Yo concer of the

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
	The basic transmission cycle of encephalitis is: 	by mosquitoes. The virus is found in infected birds, horses, and wild animals. There appear to be many different viruses that are implicated as well as different species of mosquitoes. Sometimes permanent neurological damage occurs, particularly in infants and children. 2. Leptospirosis is a widely distributed zoonotic disease which occurs commonly in cattle, swine, dogs, and wild animals. In some areas of the United States, estimates indicate that 20 percent of the cattle are infected. The majority of animals infected, however, do not develop any apparent signs of the disease.
Humans become infected with leptospirosis by contact with urine from the infected animals. Such contact generally occurs from swimming in farm ponds that have been frequented by cattle.	Invite a veterinarian to speak to the class on animal health and diseases. The discussion should include diseases common to animal and man and their protection. This discussion may be followed by a speaker from the County Health Department discussing the same basic ideas from the department's viewpoint.	Leptospirosis in humans is an acute infectious disease characterized by fever, chills, vomiting, muscular aches, and, infrequently, jaundice and kidney damage. The disease is generally more common in the summer months, when children sometimes use farm ponds for swimming purposes. Recently, public health officials in New York State indicated a concern over the appearance of the disease in rural

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			chi of
B. Plant life and man's health	Many beneficial effects and essential products are produced by plant life. Exposure to and abuse of some plant life and plant derivatives can have harmful effects on man's health.	Divide the class into two groups. Have one group list all the beneficial effects and uses of plant life. Have the other group list the harmful effects to man's health. Explain why. Refer to Strand II, Drugs and Narcotics. Although narcotic and drug abuse, tobacco (smoking), and alcoholism, are thoroughly covered in Strand II, it would be well to emphasize the ecological relationships involved at this time.	As lif and hea sou and eco tex and a f On har thr wit The in dru are to is est rel and be alc fro e.g alc dan

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			children in certain areas of the state.
	Many beneficial effects and essential products are produced by plant life. Exposure to and abuse of some plant life and plant derivatives can have harmful effects on man's health.	Divide the class into two groups. Have one group list all the beneficial effects and uses of plant life. Have the other group list the harmful effects to man's health. Explain why. Refer to Strand II, Drugs and Narcotics. Although narcotic and drug abuse, tobacco (smoking), and alcoholism, are thoroughly covered in Strand II, it would be well to emphasize the ecological relationships involved at this time.	As with animal life, plant life provides both beneficial and harmful effects on man's health. Plant life is a source of most of man's food, and contributes much to his economy in the form of textiles, building materials, and medicines - to mention a few products. On the other hand, there are harmful effects that arise through man's coexistence with and use of plant life. The current major problem in this area is narcotic and drug abuse. Many allergies are also directly related to plant life. Tobacco use is another problem since the establishment of the causal relationship between smoking and cancer. It should also be recognized that many alcoholic beverages are made from various types of plants, e.g., fruits. In this case alcoholism is a potential danger.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
C. Health implications of man's efforts to control the biological environment	The biological environment of man can affect his health status.	Discuss how the biological environment can upset the ecological balance and cause disease.	(Refe secti suppl The b inclu the t food able, nutri Examp contr and r multi ing a grams resea
1. Food shortage and disease	Historically, famines have provided a fertile breeding ground for many diseases. Most of our great plagues were brought about by drought and famine.	Conduct class discussion and research on the recent Biafra situation in view of its health implications. See Strand IV, World Health. Discuss the relationship between overpopulation. (See section I-A-3 of this strand), food shortage, and disease.	The l produ diseas lesse diseas prey t Histor plagu epide crop f and fa crop f aries result rodent and in the ro fectiv were f

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The biological environment of man can affect his health status.	Discuss how the biological environment can upset the ecological balance and cause disease.	(Refer to introductory section for review of supplementary information.) The biotic environment also includes such factors as the types and amounts of food produced, food available, food toxin, and the nutrient quality of foods. Examples of biological control are seen in mosquito and rat control programs, multiphasic health screening and immunization programs, and epidemiological research - to name a few.
Historically, famines have provided a fertile breeding ground for many diseases. Most of our great plagues were brought about by drought and famine.	Conduct class discussion and research on the recent Biafra situation in view of its health implications. See Strand IV, World Health. Discuss the relationship between overpopulation. (See section I-A-3 of this strand), food shortage, and disease.	The lack of food not only produced specific deficiency diseases, but also by lessening resistance to disease made one an easy prey to infection. Historical accounts of the plague usually report that epidemics began with drought, crop failure, insect plagues, and famine. Droughts led to crop failure and the grainaries became empty. As a result, rats and other rodents moved closer to man and invaded the cities. If the rodents carried the infective flea, the chances were favorable that the

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES
	The nutritional needs of the world's rapidly increasing population is one of our major health problems today.	Show film: *Population Ecology* available from N.Y.S. Department of Health. See Strand I, Nutrition; also Strand IV, World Health.

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		disease would be transmitted to man. Famines tended to cause populations to migrate to other areas and spread disease. Famines have also led to social disturbances. For self-preservation people took food or stole the money to obtain it. Criminality and prostitution were well known symptoms of famine. Social disruptions occurred in families as children became vagrants and were deprived of parental guidance. Since famines disorganized normal life, living conditions became worse. Disorganization of food control and water supplies resulted in epidemics of dysentery, cholera, and typhoid.
The nutritional needs of the world's rapidly increasing population is one of our major health problems today.	Show film: *Population Ecology* available from N.Y.S. Department of Health. See Strand I, Nutrition; also Strand IV, World Health.	Overpopulation, lack of farmland, ancient and inefficient agricultural methods, single crop economics, and food taboos accentuate the problem and make nations particularly vulnerable to famines. India has approximately

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		Have a student report on kwashiorkor and why it is a major health problem in parts of the world today. What other kinds of nutritional problems also exist?	It is perce under malno Kwash tein- is a of Af and A
2. Obesity	The overabundance of food that is available in some countries has also created new problems. The nature of the relationship between obesity and certain diseases is not entirely clear, but the higher mortality rate experienced by the obese group and the additional hazard imposed by being obese makes it a major health problem.	Have students analyze the relationship between obesity and disease by examining mortality and other data. Discuss the U.S. Department of H.E.W., Public Health Service report *Obesity and Health*. List the health conditions which may result from obesity.	Obesi commo order today Estima five four more Obesit shorte a high to ath mellit other

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		one-fifth of the world's population and is one of the most protein-poor countries in the world, yet cattle are abundant but because of cultural taboos they cannot be used as a food source. It is estimated that 60 percent of the people in underdeveloped areas are malnourished.
	Have a student report on kwashiorkor and why it is a major health problem in parts of the world today. What other kinds of nutritional problems also exist?	Kwashiorkor (a severe protein-deficiency disease) is a major problem in parts of Africa, Latin America, and Asia.
The overabundance of food that is available in some countries has also created new problems. The nature of the relationship between obesity and certain diseases is not entirely clear, but the higher mortality rate experienced by the obese group and the additional hazard imposed by being obese makes it a major health problem.	Have students analyze the relationship between obesity and disease by examining mortality and other data. Discuss the U.S. Department of H.E.W., Public Health Service report *Obesity and Health*. List the health conditions which may result from obesity.	Obesity and overweight are common nutritional disorders in the United States today. Estimates place one out of five men and one out of four women as 10 percent or more overweight. Obesity is linked with a shorter life expectancy and a higher susceptibility to atherosclerosis, diabetes mellitus, strokes, and other vascular disorders.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	Recent evidence supports consideration of both genetic and environmental factors as causes of obesity. Reports of studies on human populations suggest the possibility of a genetic factor. Environmental factors such as culture, activity, and the nature of the diet influence the development of obesity.	Discuss research findings on obesity in adolescents.	Seve have labo the Stud indi show to t fost A nu invo chil the thes stud they than part teri acti One the who is t over
IV. Man's Health and the Sociocultural Environment	When scientists become involved in research concerned with the epidemiology of a given disease, they examine possible leads suggested by current knowledge, (i.e., the discovery that many lung cancer patients smoked cigarettes).	Discuss how the social environment affects man's health status.	Sele effe envi are: Mo te ha by

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Recent evidence supports consideration of both genetic and environmental factors as causes of obesity. Reports of studies on human populations suggest the possibility of a genetic factor. Environmental factors such as culture, activity, and the nature of the diet influence the development of obesity.	Discuss research findings on obesity in adolescents.	Several genes for obesity have been identified in laboratory animals such as the mouse, rat, and dog. Studies of adopted children indicate that their weight shows little relationship to the weight of their foster parents. A number of recent studies involving obese school children have demonstrated the extreme inactivity of these children. Some studies have shown that they actually eat less than their normal counterparts but also are characterized by a lack of activity. One important difference in the food habits of people who are or are not obese is that the former tend to overeat in the evening.
When scientists become involved in research concerned with the epidemiology of a given disease, they examine possible leads suggested by current knowledge, (i.e., the discovery that many lung cancer patients smoked cigarettes).	Discuss how the social environment affects man's health status.	Selected examples of the effects of the sociocultural environment on health status are: Modern scientific and technological advances have improved man's health by drastically reducing

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		the death rates from communicable diseases, increasing his life expectancy, and making life in general more comfortable for him. . However, the tremendous increase in population growth combined with technological advances have now produced additional public health problems (i.e., air and water pollution, radiation hazards, sewage disposal, accidents, etc.). . Accidents are the major killer of school-age children and rank forth as a cause of death for all age groups combined, in the U.S. . Modern transportation systems enhance the possibility of world wide pandemics of infectious disease. . High pressure advertising extolls the virtues of various health products and helps to promote self-diagnosis and treatment.

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A. Description of sociocultural environment concept	The role of various behavioral traits as well as social conditions that exist among certain population groups may predispose these groups to disease.	Refer to Strand I, Health Status. The incidence of some diseases is higher in certain sociocultural environments than in others; for example, venereal disease, crime rates, and many communicable diseases have a higher incidence in poor crowded areas than elsewhere. Have the class discuss why this is so, how it can be alleviated, and what is being done about it.	Soc The is the a 2 phy The the key . Sc in cr fo is ma to a co en di lo . Sc in of tr dy th an ac sa en th oc . Sc in a

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
The role of various behavioral traits as well as social conditions that exist among certain population groups may predispose these groups to disease.	Refer to Strand I, Health Status. The incidence of some diseases is higher in certain sociocultural environments than in others; for example, venereal disease, crime rates, and many communicable diseases have a higher incidence in poor crowded areas than elsewhere. Have the class discuss why this is so, how it can be alleviated, and what is being done about it.	Social Theory of Disease. The social theory of disease is generally attributed to the work of Alfred Grotjohn, a 20th century German physician. The basic tenets of his theory involve several key considerations. . Social conditions found in the environment may create a predisposition for a disease. Social isolation, stress, fatigue, malnutrition, and exposure to cold and dampness are all examples of conditions contained within man's environment that may predispose him to tuberculosis. . Social conditions may influence the transmission of disease. Typhus, trachoma, typhoid, and dysentery are examples of the so-called crowding and filth diseases. Inadequate environmental sanitation facilities enhance the possibility that these diseases may occur in a given area. . Social conditions may influence the outcome of a disease. The lack of

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEME FO
	Various mortality studies indicate that the mortality rate for workers and their spouses increases as one moves down the economic scale.		income ly lo charac and u quart and c handic tenanc educat also r inade
	The health of a country's population is considered to be the prime factor in its economic growth and development.	Have students develop a list comparing various characteristics of developed and underdeveloped countries. Obtain the wall chart listed in the references from the Civic Education Service.	The unde of the w characte . High b . Low pe . Fewer nonagr tions . High i mortal . Low li . Low ph ratio . High i . Low co protei . Low cr . Low ca . Expandi growth . Substan . Low out service . High di . Low inv ventive

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
arious mortality studies indi-ate that the mortality rate or workers and their spouses ncreases as one moves down he economic scale.		income imposes a relatively low standard of living characterized by crowded and unsanitary living quarters, inadequate food and clothing and other handicaps to health maintenance. The lack of education and income may also result in delayed or inadequate medical care.
he health of a country's popu-ation is considered to be the rime factor in its economic rowth and development.	Have students develop a list comparing various characteristics of developed and underdeveloped countries. Obtain the wall chart listed in the references from the Civic Education Service.	The underdeveloped nations of the world are generally characterized by: . High birth and death rates . Low per-capita income . Fewer males employed in nonagricultural occupations . High infant and maternal mortality rates . Low life expectancy . Low physician-population ratio . High illiteracy rates . Low consumption of animal proteins . Low crop yields . Low caloric consumption . Expanding population growth . Substandard housing . Low output of goods and services . High disease rates . Low investment in preventive medicine

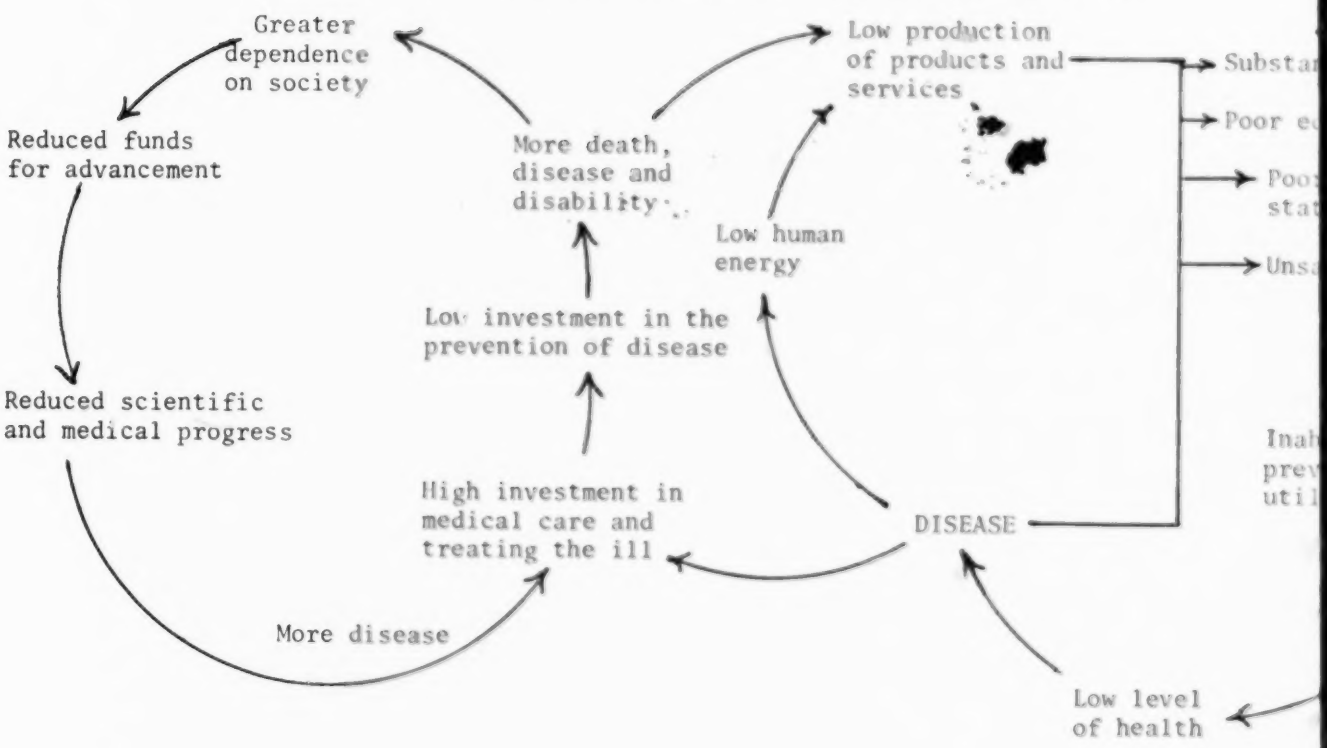
OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	Poor standards of living and a low economy contribute both directly and indirectly to disease and illness.	Refer to the chart on p. 28. Interrelate this concept with similar concepts discussed in World Health.	The pove dise and petu appe the fact cycl tion pove more cati deve freq stab The heal cann atta alon fact of l educ are inte of t

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Poor standards of living and a low economy contribute both directly and indirectly to disease and illness.	Refer to the chart on p. 28. Interrelate this concept with similar concepts discussed in World Health.	The interrelationship among poverty, economics, and disease is quite complex and tends to be self-perpetuating. Each factor appears to contribute to the maintenance of other factors in the vicious cycle. Disease in a population group tends to breed poverty and poverty breeds more disease. A complicating factor is that underdeveloped nations are frequently politically unstable. The improvement of the health status of a country cannot be solved by an attack on health problems alone. Health is a major factor but higher standards of living and increased educational opportunities are also essential in interrupting the maintenance of the cycle.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUP

THE VICIOUS CYCLE
OF
POVERTY, ECONOMICS, AND ILL HEALTH

Characteristics of Underdeveloped Countries



MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS

THE VICIOUS CYCLE
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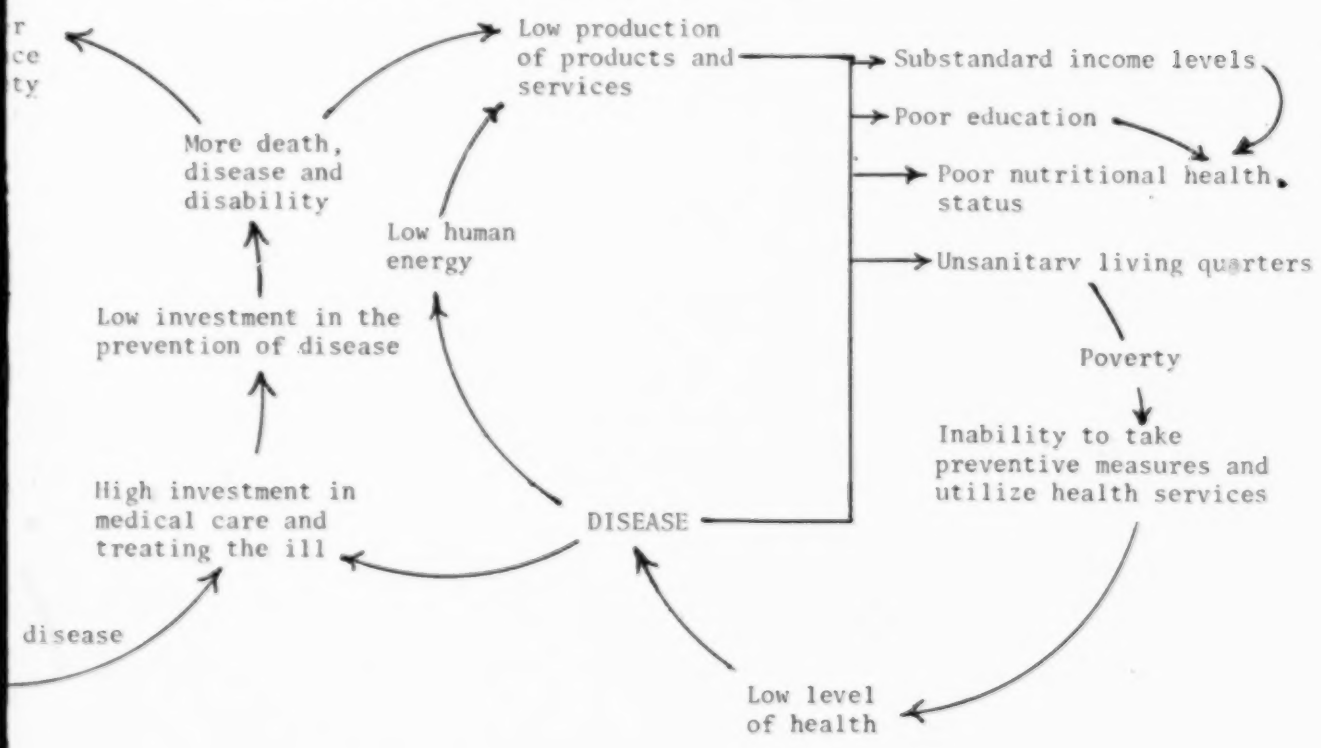

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
B. Social influences on health	There are a number of social factors within the environment itself which are important in obtaining the desired behavior in addition to such factors as perceived susceptibility, seriousness, convenience, etc.	Discuss how the peer group molds conformity in behavior, dress, and attitudes, in adolescents. Are there other things that peer groups tend to influence?	The that appr prac beha desi agre valu See Heal Soci Prob
1. Psychological and social factors determining acceptance of preventive health measures	Several studies have shown that the degree to which a person perceives a health problem as threatening and the amount of effort required by him to obtain a desired health action underlie the success or failure of many public health problems. A number of social and psychological factors have been identified as important considerations in determining an individual's decision to seek preventive health behavior.	Discuss the role that psychological and social factors play in determining health status. What part does motivation play? Immediate need or desire? Discuss the factors ascertained by the Behavioral Studies Section of the Public Health Service, related to awareness, acceptance, understanding, and the courses of action available to the individual.	It i flue obta tion of a espe is p conv it i tion of p exam The Sect Heal stra dete deci heal 1. T awar must

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
ces There are a number of social factors within the environment itself which are important in obtaining the desired behavior in addition to such factors as perceived susceptibility, seriousness, convenience, etc.	Discuss how the peer group molds conformity in behavior, dress, and attitudes, in adolescents. Are there other things that peer groups tend to influence?	The individual must believe that his own social group approves, accepts, and practices the desired behavior. Generally, the desired action should be in agreement with the existing values of the group. See Strand III, Mental Health. See also Strand II, Sociological Health Problems.
l Several studies have shown that the degree to which a r- person perceives a health problem as threatening and the amount of effort required by him to obtain a desired health action underlie the success or failure of many public health problems. A number of social and psychological factors have been identified as important considerations in determining an individual's decision to seek preventive health behavior.	Discuss the role that psychological and social factors play in determining health status. What part does motivation play? Immediate need or desire? Discuss the factors ascertained by the Behavioral Studies Section of the Public Health Service, related to awareness, acceptance, understanding, and the courses of action available to the individual.	It is much easier to influence an individual to obtain a smallpox immunization when the possibility of an epidemic occurs, especially if the measure is provided at a reasonably convenient location, than it is to obtain his cooperation in securing a series of preventive medical examinations. The Behavioral Studies Section of the U.S. Public Health Service has demonstrated that certain factors determine an individual's decision to take a given health action. 1. The individual must be aware of the threat. He must be made to believe

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
			that threa 2. Th accep the t that serio impor do so 3. Th ceive relev belie threa ly. 4. Th that actio do so
C. Cultural influences on health	The health beliefs, values, and habits of a given population are nurtured and molded by a cultural system. Culture also determines an individual's reaction to a health problem.	Discuss how culture affects man's health status. See Strand IV, World Health. Have a panel discussion involving case studies of public health programs in different cultures. Students might describe the culture, the problem that existed, and the public health program aimed at solving the problem, and then analyze the issues involved.	An in subcu his p illne In a it wa the i with cover Sic but ceiv prob sel as dri

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		that there really is a threat involved. 2. The individual must accept the importance of the threat. He must believe that the problem is a serious one and that it is important enough for him to do something about it. 3. The individual must perceive the threat as being relevant to him. He must believe the problem is threatening to him personally. 4. The individual must feel that there is some effective action that he can take to do something about it.
The health beliefs, values, and habits of a given population are nurtured and molded by a cultural system. Culture also determines an individual's reaction to a health problem.	Discuss how culture affects man's health status. See Strand IV, World Health. Have a panel discussion involving case studies of public health programs in different cultures. Students might describe the culture, the problem that existed, and the public health program aimed at solving the problem, and then analyze the issues involved.	An individual's culture and subculture help to determine his perception of health, illness, disease, and death. In a rural village in Africa it was found that many of the inhabitants were sick with malaria. It was discovered that: Sickness was quite common but malaria was not perceived as a major health problem. The people seldom mentioned health as a problem and listed drinking water and

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		irrigation needs as their major concerns. . The people thought that disease was caused by the spirits of the dead or by black magic. They had no concept of the role that microorganisms or mosquitoes played in the transmission of the disease. . Concepts of prevention were not understood by the inhabitants. . Only as a last resort would the villagers utilize the medical services provided by a health center. They felt that going to the health center meant certain death. . People relied mostly upon magic and herbs for treating their illnesses. . Mosquito abatement programs aimed at spraying the local area with DDT were met with little enthusiasm and cooperation. Such programs were perceived by them to be entirely useless. Individuals who cooperated did so not out of fear of the disease but because they feared prosecution by the authorities.

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SU
D. Beliefs, attitudes, and actions	Attitudes toward disease are frequently related to the viewpoint that disease is controlled and caused by supernatural forces, demons, or black magic. Modern medicine is sometimes in direct competition with folklore and superstition. Medical measures that are curative and spectacular are sometimes more readily accepted than preventive measures or programs.	Refer to the Health Behavior model on page 34. Health attitudes and beliefs are considered predisposers to action. They would fall under the heading of both "psychological and social forces."	The me in ua Wo "t "i of me di me em The ant qui to pr fe vis the tr ha ta mu sa re of
V. The Individual's Health as Affected by Reacting With His Environment	At any moment behavior depends on sensory input and various kinds of environmental influences which may affect one's health.	Refer to the Health-Behavior Model on page 34.	The ill in in st tr by the ti

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
Attitudes toward disease are frequently related to the viewpoint that disease is controlled and caused by supernatural forces, demons, or black magic. Modern medicine is sometimes in direct competition with folklore and superstition. Medical measures that are curative and spectacular are sometimes more readily accepted than preventive measures or programs.	Refer to the Health Behavior model on page 34. Health attitudes and beliefs are considered predisposers to action. They would fall under the heading of both "psychological and social forces."	The reception of a health message is significantly influenced by an individual's attitudes and beliefs. Words such as "infection," "tetanus," "dysentery," "immunization," and concepts of disease agents, environmental sanitation, and disease vectors hold little meaning and signal no emergency in some cultures. The treatment of yaws by antibiotics is rapid and quite dramatic as compared to attempts to control and prevent intestinal infections. People can visually see the results of the antibiotic therapy in treating yaws but find it hard to conceive of contaminated water and food, much less environmental sanitary factors, as being responsible for the presence of intestinal infections.
At any moment behavior depends on sensory input and various kinds of environmental influences which may affect one's health.	Refer to the Health-Behavior Model on page 34.	The states of health and illness result from the interaction of numerous internal and external stimuli. Illness may be triggered or precipitated by an etiological agent, but the presence of that causative agent may not

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPL
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A. Interaction of forces that may affect your health	A person's health is the result of many components interacting with each other.		
1. Social forces	Social forces are those encountered in relationships with people, for example, peer group pressure.	Have the students list examples of the various stimuli that affect their behavior.	
2. Psychological forces	Psychological forces arise in the mind as thoughts, feelings, recollections, evaluations, expectations, and emotional reactions.	Then pose a hypothetical situation or problem for the students to analyze.	
3. Biological forces	Biological forces arise in other areas of the body such as from organic functions and sensory perception.	Discuss the question: In what ways could knowledge affect one's insight regarding the stimuli that are acting and the subsequent behavior relative to the problem or situation?	
4. Environmental forces	Environmental forces emanate from objects and nonhuman events such as temperature, climate, housing, etc.		

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
		necessarily impair one's health. If behavior can change the status of a person's health, then sensory input must be changed.
A person's health is the result of many components interacting with each other.		
Social forces are those encountered in relationships with people, for example, peer group pressure.	Have the students list examples of the various stimuli that affect their behavior.	
Psychological forces arise in the mind as thoughts, feelings, recollections, evaluations, expectations, and emotional reactions.	Then pose a hypothetical situation or problem for the students to analyze.	
Biological forces arise in other areas of the body such as from organic functions and sensory perception.	Discuss the question: In what ways could knowledge affect one's insight regarding the stimuli that are acting and the subsequent behavior relative to the problem or situation?	
Environmental forces emanate from objects and nonhuman events such as temperature, climate, housing, etc.		

OUTLINE OF CONTENT	MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPP
	HEALTH BEHAVIOR MODEL		
	KNOWLEDGE +	INFLUENTIAL FORCES =	B
	Sources of knowledge	Internal and external forces	Interact influent
	Real experiences Actual performance may be a source of knowledge through trial and error, or through the application of knowledge gained elsewhere. That which is learned by experience may have positive or negative effects on one's health.	Internal forces: These include those forces within the individual both acquired and inherited. . Biological forces . Psychological forces	Behavior response synthesi ternal f tive or or destr unaccept
	Vicarious experiences These "secondhand" experiences implore one, through imagination, to project himself into an actual situation. Such means are tv, radio, newspapers, books, plays, films, records, dialogue, etc.	External forces: These forces come to affect the individual from without. . Social forces . Environmental forces The above components or forces are combined and interpreted to meet the needs of the individual in his environment with his family, peers, and others.	When con situatio vidual's flects a past exp vicariou associat to perso kinds of been exp
B. Causal approach to problem solving	The orderly system of problem solving using the "causal approach" involves (1) Observe and analyze - What is the scope of the problem? (2) Plan - Design a systematic "plan of action." (3) Act - Deal with the most critical causes first.	Pose specific problems for the class to solve using the causal approach. Follow this by group or class evaluation. Suggested topics are: alcoholism and drug abuse.	When stand taugh are b probl great face creas frust

MAJOR UNDERSTANDINGS AND FUNDAMENTAL CONCEPTS	SUGGESTED TEACHING AIDS AND LEARNING ACTIVITIES	SUPPLEMENTARY INFORMATION FOR TEACHERS
HEALTH BEHAVIOR MODEL		
E +	INFLUENTIAL FORCES =	BEHAVIOR
	Internal and external forces	Interaction of knowledge and influential forces
be a igh trial applica- elsewhere. experience itive	Internal forces: These include those forces within the individual both acquired and inherited. . Biological forces . Psychological forces	Behavior is the reaction, response, or end-product of the synthesis of internal and external forces. It may be positive or negative, constructive or destructive, acceptable or unacceptable.
eriences gination, to ictual e tv, radio, films,	External forces: These forces come to affect the individual from without. . Social forces . Environmental forces The above components or forces are combined and interpreted to meet the needs of the individual in his environment with his family, peers, and others.	When confronted with a new situation or problem, an individual's behavior usually reflects a reaction to similar past experiences--both real and vicarious. This system of associations varies from person to person, according to the kinds of experiences he has been exposed to.
The orderly system of problem solving using the "causal approach" involves (1) Observe and analyze - What is the scope of the problem? (2) Plan - Design a systematic "plan of action." (3) Act - Deal with the most critical causes first.	Pose specific problems for the class to solve using the causal approach. Follow this by group or class evaluation. Suggested topics are: alcoholism and drug abuse.	When compared to students in standard classes, children taught the "causal approach" are better able to solve problems. They showed greater perseverance in the face of ambiguity and increased toleration to frustration.

MULTIMEDIA RESOURCES

ECOLOGY AND HEALTH
Grades 7-8-9

These supplementary a
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convenience only and
are requested to crit
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Apple, Dorian. *Sociological studies of health and sickness.* New York. McGraw-Hill. 19

Bankoff, George. *Milestones in medicine.* New York. Pitman. 1961.

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MULTIMEDIA RESOURCES

ECOLOGY AND HEALTH
Grades 7-8-9

These supplementary aids have not been evaluated. The list is appended for teacher convenience only and teachers in the field are requested to critically evaluate the materials and to forward their comments to the Curriculum Development Center.

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Dr. J.F. Enders," October 29, 1954.

Films - The following suggested list of films may be ordered from the Film Library, New Yo
Health, 84 Holland Avenue, Albany, New York 12208, unless otherwise noted.

Air pollution - everyone's problem. 20 minutes, color. Emphasizes the causes, effects,
combating the air pollution problem.

Anatomy of a disease. 14 1/2 minutes, color. Presents basic facts concerning the epide
Utilizes several brief interviews with tuberculosis patients as background material.

Beargrass creek. 20 minutes, color. Describes the general problem of water pollution.
given to the municipal responsibility of treating sewage instead of discharging raw se

Clean waters. 27 minutes, color. Demonstrates the ecologic aspects of water pollution
populations, recreational facilities, and disease in man.

Epidemiology of murine typhus. 18 minutes, color. Free from the National Medical Audio
Chamblee, Ga. 30005.

Epidemiology of salmonellosis in man and animals. 15 minutes, color. Explains the compl
patterns of salmonellosis and the significance of human carriers.

Epidemiology of staphylococcal infection. 14 minutes, color. Illustrates the interactio
and environment in the transmission of disease. Also available free from the National
Center, (annex), Chamblee, Ga. 30005.

The first mile up. 28 minutes, black and white. Discusses the various factors involved
Utilizes a series of interviews and comments from health and engineering authorities co
tion problem.

Mission measles: the story of a vaccine. 20 minutes, black and white. Discusses the na
of measles including the development, testing, and perfection of the Enders vaccine.

The mosquito and its control. 10 minutes, black and white. Presents the life cycle of t
implication of the cycle for combating mosquito-borne diseases.

Population ecology. 19 minutes, color. Examines factors which limit growth of plant and

Stress. 11 minutes, black and white. Describes the general concept of the stress theory
by Dr. Hans Selye. Utilizes third dimensional diagrams to illustrate various relations

ggested list of films may be ordered from the Film Library, New York State Department of
nd Avenue, Albany, New York 12208, unless otherwise noted.

e's problem. 20 minutes, color. Emphasizes the causes, effects, and approaches to
llution problem.

14 1/2 minutes, color. Presents basic facts concerning the epidemiology of tuberculosis.
f interviews with tuberculosis patients as background material.

nutes, color. Describes the general problem of water pollution. Particular emphasis is
l responsibility of treating sewage instead of discharging raw sewage into streams.

es, color. Demonstrates the ecologic aspects of water pollution in respect to animal
onal facilities, and disease in man.

typhus. 18 minutes, color. Free from the National Medical Audio-visual Center (annex),

llosis in man and animals. 15 minutes, color. Explains the complex transmission
osis and the significance of human carriers.

ococcal infection. 14 minutes, color. Illustrates the interaction of the agent, host,
e transmission of disease. Also available free from the National Medical Audio-visual
nblee, Ga. 30005.

minutes, black and white. Discusses the various factors involved in air pollution.
interviews and comments from health and engineering authorities concerning the air pollu-

story of a vaccine. 20 minutes, black and white. Discusses the nature and seriousness
the development, testing, and perfection of the Enders vaccine.

ntrol. 10 minutes, black and white. Presents the life cycle of the mosquito and the
cle for combating mosquito-borne diseases.

9 minutes, color. Examines factors which limit growth of plant and animal populations.

lack and white. Describes the general concept of the stress theory of disease developed
tilizes third dimensional diagrams to illustrate various relationships.